REMARKS/ARGUMENTS

This amendment is submitted in connection with the filing of a Request for Continuing Examination (RCE). Reconsideration of the above-identified application is respectfully requested.

In the Office Action dated March 14, 2008, claims 1-2 and 4-6 are provisionally rejected for nonstatutory obviousness-type double patenting over claims 5-6 and 9-11 of copending Application No. 10/471,087.

Claims 1-2, 4-5, 9-11 and 16-18 are rejected under 35 U.S.C. §102(b) as being anticipated by JP05-058624 (hereinafter "the JP '624 patent").

Claims 1 and 4-5 are rejected under 35 U.S.C. §102(b) as being anticipated by US6,632,276 (hereinafter "the JP '276 patent").

Claims 1 and 9-11 are rejected under 35 U.S.C. §103(a) as being unpatentable over JP-06-009359 (hereinafter "the JP '359 patent") in view of JP11-130652 (hereinafter "the JP '652 patent").

Claims 1 and 9-11 are rejected under 35 U.S.C. §103(a) as being unpatentable over US6,416,573 (hereinafter "the '573 patent").

Claims 2, 4, 12 and 15 are rejected under 35 U.S.C. §103(a) as being unpatentable over CA2,374,539 (hereinafter "the CA '539 patent").

Claims 2, 4, 12, 15 and 18 are rejected under 35 U.S.C. §103(a) as being unpatentable over Bloom et al. J. Chem. Soc. A, 1971, 833-836 (hereinafter "Bloom et al.").

Claims 1-2, 4-5, 9-11 and 15-18 are rejected under 35 U.S.C. §103(a) as being unpatentable over the JP '624 patent.

In response to the Office Action, Applicants have amended claims 2, 4-5 and 15-17. Claims 1, 3, 6-14 and 18 are canceled, and new claims 19-32 are added. New claims 19-26 are fully supported by the specification on page 6-7. No new matter has been introduced. Applicants respectfully submit that the amendments have overcome the objections and rejections for the reasons set forth below:

Double Patenting Rejection

Claims 1-2 and 4-6 are provisionally rejected for nonstatutory obviousness-type double patenting over claims 5-6 and 9-11 of copending Application No. 10/471,087. Claims 1 and 6 have been canceled for reasons not related to this rejection. A Provisional Terminal Disclaimer, nevertheless, is provided accompanying this submission in compliance with 37 CFR 1.321(c) to obviate the rejection to claims 2, 4 and 5.

Rejections under 35 U.S.C. §102

Claims 1-2, 4-5, 9-11 and 16-18 are rejected under 35 U.S.C. §102(b) as being anticipated by JP05-058624 (the JP '624 patent). Claims 1 and 4-5 are rejected under 35 U.S.C. §102(b) as being anticipated by US6,632,276 (the '276 patent). Applicants respectfully reverse the rejections for the following reasons.

For anticipation under 35 U.S.C. §102, the reference "must teach every aspect of the claimed invention either explicitly or impliedly. Any feature not directly taught must

be inherently present." *See* MPEP §706.02, IV. The Federal Circuit has consistently held that prior art is anticipatory only if every element of the claimed invention is disclosed in a single item of prior art in the form literally defined in the claim. *See e.g.*, *Jamesbury Corp. v. Litton Indus. Products*, 756 F.2d 1556, (Fed. Cir. 1985); *Atlas Powder Co. v. DuPont;* 750 F.2d 1569, (Fed. Cir. 1984); *American Hospital Suppl v. Travenol Labs*, 745 F.2d 1 (Fed. Cir. 1984)).

Independent claim 2 of the instant application, as amended, is directed to "an insoluble powder having a negative value of zeta-potential and a main ingredient of barium sulfate doped with a metal ion, wherein said powder has an average primary particle diameter of 3 to 100 μm and an aspect ratio of 3 to 250, and wherein said metal ion is one selected from the group consisting of lithium, sodium and zinc".

The JP '624 patent generally describes a method for preparing barium powder. The JP '624 patent, however, fails to disclose "barium sulfate doped with a metal ion," as recited in claim 2 of the instant application. Specifically, Applicants respectfully submit that metal doped barium sulfate cannot be formed by the method described in the JP '624 patent.

The JP '624 patent describes a method to produce barium sulfate by mixing a barium compound solution comprising one or more barium compounds with a sulfate solution comprising one or more sulfate compounds. The sulfate compounds include sodium sulfate and sodium hydrogen sulfate. The metal doped barium sulfate cannot be formed by the method of the JP '624 patent, *i.e.*, by simply mixing a barium compound solution with a sulfate solution containing a metal ion, such as the solution of sodium

sulfate or sodium hydrogen sulfate. The method described in the JP '624 patent produces only non-doped barium sulfate but not metal doped barium sulfate.

In order to obtain metal doped barium sulfate with a negative zeta-potential, as described in the instant invention, one need to follow the methods described in paragraph [0053] of the instant application and now claimed in new claims 19-32, *i.e.,* by (1) mixing a barium compound solution containing a barium ion (solution A) with a metal salt compound solution containing a metal ion (solution B), and then adding the mixture of A and B, to a sulfate compound solution containing a sulfate ion (solution C); or (2) mixing solution A with solution C, and then add the mixture of A and C to solution B. For this reason alone, claim 2 is patentable over the JP '624 patent.

Moreover, the JP '624 patent fails to disclose a barium sulfate powder having a negative value of zeta-potential and an aspect ratio of 3 to 250, as recited in claim 2. The Examiner alleges that the aspect ratio of 3-250 does not give it patentable weight, since "it is the same composition and same process of making..." *See* Office Action at 10. As discussed above, the one step process for producing barium sulfate, as described in the JP '624 patent, is different from the two-step process described in the instant invention. The JP '624 method produces non-doped barium sulfate, while the method of the instant invention produces metal doped barium sulfate. Therefore, the '624 patent fails to disclose "the same composition and same process of making.., " as asserted by the Examiner.

The '276 patent generally describes barium sulfate particles coated with a tin oxide layer doped with phosphorus. The '276 patent does not teach or suggest "barium

sulfate doped with a metal ion" and a barium sulfate powder "having a negative value of zeta-potential," as recited in claim 2. Specifically, the '276 patent only mentions suspending $BaSO_4$ particles in water and adding a water-soluble tin salt and a water-soluble phosphorus compound. A person of ordinary skill in the art would understand that this process will not convert non-doped barium sulfate to metal doped barium sulfate. In addition, the '276 patent fails to disclose that the coated barium sulfate particles have "a negative value of zeta-potential."

Accordingly, Applicants respectfully submit that claim 2 is not anticipated by the JP '624 patent and the '276 patent, respectively, because neither patent teach every aspect of the claimed invention. Applicants further submit that claims 4, 5, 16 and 17 are patentable over the JP '624 patent and the '276 patent because they depend upon claim 2 and recite additional patentable subject matter. Withdrawal of the rejections under 35 U.S.C. §102 is respectfully requested.

Rejections under 35 U.S.C. §103

Claims 1 and 9-11 are rejected under 35 U.S.C. §103(a) as being unpatentable over JP-06-009359 (the JP '359 patent) in view of JP11-130652 (the JP '652 patent). Additionally, the Examiner alleged that claims 1 and 9-11 are rejected under 35 U.S.C. §103(a) as being unpatentable over US6,416,573 (the '573 patent); claims 2, 4, 12 and 15 are rejected under 35 U.S.C. §103(a) as being unpatentable over CA2,374,539 (the CA '539 patent); claims 2, 4, 12, 15 and 18 are rejected under 35 U.S.C. §103(a) as being unpatentable over Bloom et al. J. Chem. Soc. A, 1971, 833-836 (Bloom) in view of the

CA '539 patent; and claims 1-2, 4-5, 9-11 and 15-18 are rejected under 35 U.S.C. §103(a) as being unpatentable over the JP '624 patent in view of the '276 patent. Applicants respectfully traverse the rejections.

To establish a *prima facie* case of obviousness ... the prior art reference (or references when combined) must teach or suggest all of the claim limitations. *In re Vaeck*, 947 F.2d 488 (Fed. Cir. 1991) and *MPEP* § 2142.

Independent claim 2 of the instant application, as amended, is directed to an insoluble powder having a negative value of zeta-potential and main ingredient of barium sulfate doped with a metal ion, wherein said powder has an average primary particle diameter of 3 to 100 μm and an aspect ratio of 3 to 250, and wherein said metal ion is one selected from the group consisting of lithium, sodium and zinc.

With respect to rejection over the JP '359 patent and the '652 patent, the JP '359 patent generally describes UV ray-shielding powder containing barium sulfate. The JP '359 patent does not teach or suggest "barium sulfate doped with a metal ion" and a barium sulfate powder "having a negative value of zeta-potential," as recited in claim 2. In fact, the barium sulfate powder in the JP '359 patent is surface-treated by surfactant and UV absorber. A person of ordinary skill in the art would understand that the barium sulfate powder would be covered with a surfactant which has a potential opposite to surface potential of said powder. Thus, the surface potential of the UV ray-shielding barium sulfate powder is opposite to that of the barium sulfate powder of the present invention. In other words, while the untreated barium sulfate powder has a negative beta-potential, the surface-treated barium sulfate powder of the JP '359 patent has a positive

beta-potential. Therefore, the JP '359 patent actually teaches away from the instant invention.

The JP '652 patent does not cure the deficiency of the '359 patent. The JP '652 patent generally describes a skin cosmetic containing water swellable clay minerals having a >30mV absolute value of zeta-potential. The JP '652 patent also fails to teach or suggest "barium sulfate doped with a metal ion" and a barium sulfate powder "having a negative value of zeta-potential," as recited in claim 2. Specifically, the JP '652 patent provides no teaching that the skin cosmetic includes barium sulfate as clay mineral. Further, a person of ordinary skill in the art would not consider barium sulfate as a "water swellable clay mineral." Accordingly, claim 2 is patentable over the JP '359 patent and the JP '652 patent.

With respect to rejection over the '573 patent, the '573 patent generally describes a complex powder comprising clay mineral (including barium sulfate) and aluminium hydroxide fixed on the surface of said clay mineral. The '573 patent does not teach a ""barium sulfate doped with a metal ion" and a barium sulfate powder "having a negative value of zeta-potential," as recited in claim 2. In fact, the present specification shows that zeta-potential of aluminium doped barium sulfate is positive. It thus seems unlikely that the complex powder with aluminium hydroxide fixed on the surface can have a negative zeta-potential. Therefore, claim 2 is patentable over the '573 patent.

With respect to rejection over the CA '539 patent, the CA '539 patent generally describes an anticorrosive comprising barium sulfate doped with tin or antimony as conductivity pigment or conductive filler. The CA '539 patent does not teach of suggest

"barium sulfate doped with a metal ion;... wherein said metal ion is one selected from the group consisting of lithium, sodium and zinc," and barium sulfate powder with "an aspect ratio of 3 to 250," as recited in claim 2. With regard to the aspect ratio, Applicants would like to note that the '276 patent discloses that barium sulfate particles can be either platelet shaped (i.e., with an aspect ratio of 3 or greater) or spherical (*i.e.*, with an aspect ratio of about 1). Therefore, the barium sulfate of the CA '539 patent does not inherently possesses "an aspect ratio of 3 to 250." Claim 2 is patentable over the CA '539 patent.

With respect to rejection over Bloom and the CA '539 patent, Bloom generally describes alkali-metal interaction with trapped hydrogen atoms in barium sulfate. Bloom does not teach or suggest a barium sulfate powder having a negative value of zeta-potential and an aspect ratio of 3 to 250, as recited in claim 2.

In fact, the barium sulfate of Bloom was prepared using a process that is different from the process described in the instant invention. Specifically, the barium sulfate in Bloom was precipitated from aqueous solutions of barium chloride and other required ions by slow addition of aqueous sodium sulfate at 370 K. Then, the resulting suspensions were digested at ca. 350 K for several hours, filtered, and dried at about 420 K for 24 h prior to exposure to ^{60}Co γ-rays (Page 834, left column). Therefore, the barium sulfate of Bloom will not inherently have a negative value of zeta-potential and an aspect ratio of 3 to 250, as recited in claim 2.

The CA '539 patent does not cure the deficiency of Bloom. As discussed earlier, the CA '539 patent also fails to teach or suggest a barium sulfate powder having a

negative value of zeta-potential and an aspect ratio of 3 to 250, as recited in claim 2. Accordingly, claim 2 is patentable over Bloom and the '539 patent.

With respect to the rejection over the JP '624 patent and the '276 patent, as discussed earlier, both the JP '624 and the '276 patents fail to teach or suggest "barium sulfate doped with a metal ion" and a barium sulfate powder "having a negative value of zeta-potential," as recited in claim 2. Therefore, claim 2 is patentable over the JP '624 and the '276 patents.

Taken together, Applicants respectfully submit that claim 2 is patentable over all the cited references and combinations of references because none of these references or combinations of references teach or suggest all claim limitations. Applicants further submit that claims 4, 5, 15-17 are patentable over the cited references because they depend from claim 2 and recite additional patentable subject matter. Withdrawal of the rejections under 35 U.S.C. §103 is respectfully requested.

Conclusion

In view of the above remarks, Applicant respectfully submits that the application is in condition for allowance. Prompt examination and allowance are respectfully requested.

Should the Examiner believe that anything further is desired in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicant's undersigned representative at the telephone number listed below.

Respectfully submitted,

Dated: September 12, 2008

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